

WHAT IS CLAIMED IS:

1. 1. A device for dispensing particulate matter into a fluid stream, comprising:
 2. a supply of dry particulate matter;
 3. a transport member adapted to receive the particulate matter and a fluid stream;
 4. a sensor to detect a weight of at least a portion of the particulate matter; and
 5. a controller to monitor the weight of particulate matter dispensed into the fluid stream.
1. 2. The device of claim 1, wherein the controller determines the weight of particulate matter dispensed into the fluid stream.
1. 3. The device of claim 1, further comprising means to start or stop the dispensation of the particulate matter into the fluid stream.
1. 4. The device of claim 1, further comprising a valve connected to the transport member for controllably releasing a quantity of the particulate matter from a container into the transport member.
1. 5. The device of claim 4, wherein the valve includes a rotor assembly comprising an auger.
1. 6. The device of claim 1, wherein the sensor comprises a transducer selected from the group consisting of a load cell and a scale.
1. 7. The device of claim 6, wherein the controller is housed in the scale and the container comprises a flexible bin.
1. 8. The device of claim 1, wherein the sensor detects a weight of a portion of the particulate matter before it is dispensed into the fluid stream.

- 1 9. The device of claim 1, wherein the sensor is operative to measure a weight that
- 2 includes the weight of the particulate matter and the weight of a bin containing the particulate
- 3 matter.

- 1 10. The device of claim 1, wherein the sensor is operative to measure a weight that
- 2 includes the weight of the particulate matter and the weight of the dispensing device.

- 1 11. The device of claim 1, wherein the controller is wirelessly coupled to the sensor.

- 1 12. The device of claim 1, wherein the controller comprises a programmable logic
- 2 controller that receives a signal associated with the weight of a quantity of a particular matter
- 3 held in a container and wherein the programmable logic controller calculates the weight of
- 4 particulate matter dispensed during an interval.

- 1 13. The device of claim 1, wherein the conduit comprises an eductor and the particulate
- 2 matter is selected from the group consisting of pesticides, herbicides, fertilizers, and
- 3 adjuvants.

- 1 14. The device of claim 1, wherein the controller generates a signal in response to which
- 2 the flow of particulate matter into the conduit is initiated, stopped, or throttled.

- 1 15. The device of claim 1, wherein the transport member is a generally cylindrical
- 2 conduit.

- 1 16. The device of claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 or 15, wherein the
- 2 device further comprises a vibrator to facilitate the dispensation.

- 1 17. A device for dispensing particulate matter, comprising:
2 a container for holding particulate matter;
3 a conduit for transporting a stream of liquid carrier, the conduit being operative to
4 receive particulate matter from the container;

5 a means for detecting a weight of at least a portion of the particulate matter; and
6 means for determining a weight of material dispensed into the liquid carrier.

1 18. The device of claim 17, wherein the measuring means comprises a means for
2 receiving an input from the detecting means and for generating a signal in response to which
3 a flow of particulate matter into the conduit is modified.

1 19. The device of claim 17, further comprising a means connected to the container for
2 controllably releasing a quantity of the particulate matter from the container into the conduit.

1 20. The device of claim 17, wherein the receiving and generating means determines the
2 weight or mass of particulate matter that is released from the container into the conduit.

1 21. The device of claim 17, wherein the measuring means comprises at least one load cell
2 or an electronic scale.

1 22. The device of claim 21, wherein the receiving and generating means is housed in the
2 electronic scale.

1 23. The device of claim 17, wherein measuring means is operative to measure a
2 gravimetric amount that includes the weight of the particulate matter, the container, and a
3 frame.

1 24. The device of claim 17, wherein the receiving and generating means is wirelessly
2 coupled to the detecting means.

1 25. The device of claim 17, wherein the receiving and generating means generates a
2 signal in response to which the flow of particulate matter into the conduit is initiated,
3 stopped, or throttled.

1 26. A system for controlling a networked array of dispensing devices, comprising:
2 a first dispensing device;

3 a second dispensing device for dispensing particulate matter, the second dispensing
4 device comprising:
5 a container for holding particulate matter;
6 a conduit for transporting a stream of liquid carrier, the conduit being
7 operative to receive particulate matter from the container;
8 a sensor to detect a weight of at least a portion of the particulate matter; and
9 a local controller coupled to the sensor to generate a signal when a
10 predetermined quantity of particulate matter is dispensed in response
11 to which the flow of particulate matter into the conduit is modified;
12 a parent controller coupled to the first and second dispensing devices, wherein the
13 parent controller is operative to transmit a first set of instructions to the second dispensing
14 device and the local controller is operative to generate a second set of instructions.

1 27. The system of claim 26, wherein the local controller is operative to transmit status
2 information to the parent controller.

1 28. The system of claim 26, wherein the second dispensing device further comprises a
2 valve connected to the bin for controllably releasing a quantity of the particulate matter from
3 the container into the conduit.

1 29. The system of claim 28, wherein the sensor of the second inductor is operative to
2 detect the weight or mass of particulate matter held in the container.

1 30. The system of claim 26, wherein the sensor comprises an electronic scale.

1 31. The system of claim 26, wherein the first set of instructions comprises instructions
2 selected from the group consisting of start, stop, and chemical select commands.

1 32. A device for dispensing particulate matter into a fluid stream, comprising:
2 a supply of dry particulate matter selected from the group consisting of pesticides,
3 herbicides, fertilizers, and adjuvants;

4 a transport member adapted to receive the particulate matter and a fluid stream;
5 a sensor to detect a weight of at least a portion of the particulate matter; and
6 a controller to monitor the weight of particulate matter dispensed into the fluid
7 stream.

1 33. The device of claim 32, wherein the controller determines the weight of particulate
2 matter dispensed into the fluid stream.

1 34. The device of claim 32, further comprising means to start or stop the dispensation of
2 the particulate matter into the fluid stream.

1 35. The device of claim 32, further comprising a valve connected to the transport member
2 for controllably releasing a quantity of the particulate matter from a container into the
3 transport member.

1 36. The device of claim 35, wherein the valve includes a rotor assembly comprising an
2 auger.

1 37. The device of claim 32, wherein the sensor comprises a transducer selected from the
2 group consisting of a load cell and a scale.

1 38. The device of claim 37, wherein the controller is housed in the scale and the container
2 comprises a flexible bin.

1 39. The device of claim 32, the sensor detects a weight of a portion of the particulate
2 matter before it is dispensed into the fluid stream.

1 40. The device of claim 32, wherein the sensor is operative to measure a weight that
2 includes the weight of the particulate matter, a bin, a the frame.

1 41. The device of claim 32, wherein the controller is wirelessly coupled to the sensor.

1 42. The device of claim 32, wherein the controller comprises a programmable logic
2 controller that receives a signal associated with the weight of a quantity of a particular matter
3 held in a container and wherein the programmable logic controller calculates the weight of
4 particulate matter dispensed during an interval.

1 43. The device of claim 32, wherein the conduit comprises an eductor.

1 44. The device of claim 32, wherein the controller generates a signal in response to which
2 the flow of particulate matter into the conduit is initiated, stopped, or throttled.

1 45. The device of claim 32, wherein the transport member is a generally cylindrical
2 conduit.

1 46. The device of claim 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44 or 45, wherein
2 the device further comprises a vibrator to facilitate the dispensation.

3 47. A device for dispensing dry material into a fluid stream, comprising:
4 a conduit for transporting a stream of fluid carrier, the conduit being adapted to
5 receive a supply of dry material;
6 a sensor to measure a weight or mass that includes the weight or mass of at least a
7 portion of the dry material; and
8 a controller coupled to the sensor to generate a signal in response to which a flow of
9 dry material into the conduit is modified.

1 48. The device of claim 47, wherein sensor is operative to measure a weight that includes
2 the weight of the dry material and the weight of a bin that contains the particulate matter.

1 49. The device of claim 47, wherein the dry material is a particulate matter comprising a
2 fertilizer, pesticide, herbicide, or adjuvant.

1 50. The device of claim 49, wherein the controller comprises a programmable logic
2 controller that receives a signal associated with the weight of a quantity of a particular matter
3 held in a container and wherein the programmable logic controller calculates the weight of
4 particulate matter dispensed during an interval.

1 51. A method for dispensing particulate matter into a fluid stream, comprising:
2 providing a fluid stream;
3 providing a supply of particulate matter to be dispensed into the fluid stream;
4 sensing a weight of at least a portion of the particulate matter;
5 monitoring the weight of the particular matter dispensed into the fluid stream; and
6 modifying the rate at which the particulate matter is dispensed based on the
7 monitored weight.

1 52. The method of claim 51, wherein modifying comprises starting, stopping, or
2 throttling.

1 53. The method of claim 51, wherein the monitoring comprises detecting a weight with a
2 transducer.

1 54. The method of claim 51, further comprising determining when the weight of
2 particulate matter dispensed meets a predetermined threshold.

1 55. The method of claim 51, wherein the supply of particulate matter is provided in a
2 closed flexible container.

1 56. The method of claim 55, further comprising determining the change in weight of
2 particulate matter in said container.

1 57. The method of claim 52, wherein said particulate matter is selected from the group
2 consisting of pesticides, herbicides, fertilizers, and adjuvants.

1 58. The method of claim 55, further comprising determining the change in weight of
2 particulate matter in said container.

1 59. A method for dispensing particulate matter into a fluid stream using a device for
2 dispensing particulate matter, comprising:
3 providing a fluid stream;
4 measuring a first weight associated with the dispensing device;
5 providing a quantity of particulate matter to be dispensed into the fluid stream;
6 measuring a second weight associated with the dispensing device after the initiation
7 of the dispensing of said particulate matter;
8 ceasing the dispensing of said particulate matter based on the first and second
9 measured weights.

1 60. The method of claim 59, wherein the first measured weight includes the weight of an
2 amount of the particulate matter and a bin coupled to the dispensing device.

1 61. The method of claim 59, wherein the second measured weight differs from said first
2 measured weight by substantially the weight of particulate matter dispensed into said fluid
3 stream during an interval.